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THE DOG OF SACRED HISTORY.

BY E. CAMBRIDGE PHILLIPS, F.L.S.

IN the able and interesting article on "Dogs, Ancient and Modern," published in 'The Zoologist' of October last, the author, quoting Canon Tristram on the subject, infers that the dog being unclean to the Israelites was regarded and tolerated by them simply as a scavenger, and that domestic breeds were almost unknown.

I have thought it worth while, therefore, to offer the readers of 'The Zoologist' the following observations, in which I have been assisted, as regards the Hebrew, by one of our best Hebrew scholars, and venture to hope that the remarks I have to make may cause the dog of Sacred History to be looked at in a very different light to that in which it is usually regarded.

Exception may be taken to the statement (p. 399) that the earliest record of the dog in Sacred History is in connection with the sojourn of the children of Israel in Egypt. In Gen. x. 9, as also Gen. xxv. 27, the word "hunter" signifies "one who lays snares"; but the Septuagint version, in Greek from the Hebrew, renders the word *κυνηγος*, *i. e.* "dog-leading." The inference is fairly plain that dogs were led in slips and used for coursing various kinds of game, and probably also for driving it into snares or nets; or possibly to follow up and course animals wounded with the arrow, as in Gen. xxvii. 3, where Isaac says to Esau, "Take, I pray thee, thy weapons, thy quiver and thy bow,



and go out to the field and take (Hebrew 'hunt') me some venison," though it by no means follows that this was the usual way of killing game at that time, the commands of the patriarch, and the particular mention of the weapons to be employed, seeming to indicate extreme haste.

That there were shepherd dogs at a very early date is evidenced from Job xxx. 1,—probably the most ancient book extant, supposed by many to be even before the time of Abraham,—in which the "dogs of my flock" are specially mentioned. In Proverbs xxx. 31, and after the exodus of the children of Israel from Egypt, occurs also that curious text, "a greyhound; an he goat also; and a king, against whom there is no rising up." Unfortunately, the word "greyhound" is a mistranslation, the Hebrew being "one girt about the loins." Some refer it to the horse. Both German editions of the Bible, however, render the word "dog," and as such the fact is worth recording. How the word "greyhound" has crept into our version I am unable to explain; it being the only passage in the Bible wherein a special breed of dog is mentioned. I only allude to it, however, in order to show that the text has not escaped my observation.

The words in Isaiah lvi. 10, "They are all dumb dogs, they cannot bark," would seem to show that at that time dogs were used as a watch for houses, especially when taken in conjunction with the preceding words, "His watchmen are blind." This was certainly the case later on, in the time of our Saviour, the words, "Yet the dogs eat of the crumbs that fall from their master's table" (Matt. xv. 27), showing unquestionably that dogs were then allowed not only in the house, but at the best table, *i.e.*, the master's, the article (*τοῖς κυνᾶριοις*) implying the presence of dogs, or rather little dogs or puppies.

It is to be regretted that there is no Hebrew version of the Book of Tobit, or possibly the breed of dog there referred to may have been mentioned. As it is, the word in both texts (Tobit v. 16; xi. 4) is simply *κυνον*. Assuming the genuineness of the book, and up to the present time no valid reason has been shown to the contrary, the information contained in these texts is valuable, as showing that the dog was at that time known as the friend and companion of man.

It would seem, also, that although the dog was unclean to the Jews, yet it had a certain value in their eyes, and that it was

placed before other unclean animals, for the Talmud says "Dogs may be fed on the Sabbath day, but not swine"; and we learn from Josephus that Herod kept a regular hunting establishment as well as a huntsman, following up the sport in a country abounding with stags and other wild animals.

The words of the text, 2 Kings viii. 13, "Is thy servant a dog (or more correctly *the* dog), that he should do this great thing?" is commonly quoted, with the omission of the word "great," to show the very low estimation in which dogs were held by the Jews, whereas it may very possibly allude to the power of the dog in Hazael doing this "great" and terrible thing, or has reference only to the pariah.

Although the Hebrews were not, as a rule, much given to field sports, lions being taken in pitfalls, as at the present day by the Arabs (2 Sam. xxiii. 20), and birds in traps or snares (Amos iii. 5; Ecc. ix. 12), which may possibly account for the few occasions on which dogs are mentioned in the Scriptures, yet I think it may be inferred, from the various texts I have quoted, that several breeds of dogs were known to the Israelites, differing from the miserable pariah, the scavenger of the East; such, for example, as shepherd dogs, watch dogs, house dogs, companionable dogs, and dogs used for the chase; and certainly dogs of far higher grade than the dog of Sacred History is popularly supposed to have occupied.

WAYSIDE NOTES DURING A WEST COUNTRY DRIVE.

By CECIL SMITH.

I SEND a few wayside notes, made during a driving tour last year, which extended further to the westward than that described by me in 'The Zoologist' for 1883, p. 448. Instead of Wilts and Dorset we were this time chiefly in Devon and Cornwall, getting as far as the Land's End and the Lizard, and back over Dartmoor. We started from Bishops Lydeard on the 16th of May, and drove to Minehead. We saw nothing about the Harbour there but a few immature Herring Gulls, no adults amongst them. Amongst the furze on the hillside towards the sea were a considerable number of Stonechats; most of them

probably had nests, though we were not successful in finding one. I do not think, however, that any of them were sitting, as they were seen in pairs.

Next day, the 17th, we drove through Porlock to Linton, but did not see anything to interest us, not even a Peewit, on the part of Exmoor we crossed. After our arrival at Linton we walked to the Valley of Rocks, where we saw a good many adult Herring Gulls about the cliffs, and one pair of adult Lesser Black-backs, though we could not discover that either species was nesting there. We also saw a pair of Red-backed Shrikes on our way back.

On the 18th we again walked to the Valley of Rocks, saw the Red-backed Shrikes again, about the same place; they probably had a nest in a very thick hedge between the wild ground and some potato gardens. There were a good many pairs of Kestrels about the cliffs. One pair we watched down to their nest in a crevice in a perfectly impracticable part of the rock, at least without ropes. We also saw a pair of Buzzards, alternately bullying and being bullied by some noisy Jackdaws. Later on in the evening we walked up the Waters Meet Valley. Dippers seemed to be scarce on the stream, for we only saw two or three, and no Kingfishers. There were however a good many Grey Wagtails about, and were probably nesting, for I found a Grey Wagtail's nest at Lydeard on the 20th of April, and they were sitting hard before we left, on May 15th. These eventually brought off their young in safety.

On the 19th we went through Barnstaple to Westward Ho.

While we were in Barnstaple I paid a visit to Rowe, the local birdstuffer, but he had nothing in his shop of interest except a Velvet Scoter, which had been shot in Bideford Bay about two years ago. At Westward Ho we walked about the golf ground, and found a Meadow Pipit's nest, not quite finished and with no eggs in it, placed in a tuft of rushes. By a salt-water pool, lately made by the sea breaking over the pebble ridge, we saw a flock of about fifty Purres (*Tringa alpina*), some in full breeding plumage, with beautiful black breasts, and others as yet showing very little signs of summer plumage. They were very tame, and allowed a near approach.

May 20th, to Clovelly, where we saw a few Herring Gulls and Lesser Black-backs about the harbour, both adult and immature

birds, and one Cormorant. Proceeding to Bude, in the afternoon, we saw a small flock of Peewits, about some wild ground about half-way on, but we did not find any eggs; though we extended in line over the ground to look for them we did not see anything. At Bude there was nothing worth noting, and the next day we drove on to Boscastle, passing another small flock of Peewits in the same sort of ground, which were also probably breeding. On arrival we took a walk on the cliffs on the Bude side of Boscastle, and saw a good many Herring Gulls breeding on the cliffs, the females mostly sitting, but one or two had young hatched and able to run about on the ledges of rock some way from the nest. There were also a good many Razorbills on the ledges of rock, some sitting and some flying up and down to the sea and back; we did not see any young ones, though at places we could look across some narrow inlets in the rocks and see the eggs quite plainly. We saw several Shags about the cliffs, evidently breeding, though we could not see their eggs like those of the Razorbill. At one place we saw a male Kestrel come out of a hole in the rock, and soon after the female went into the same hole, but whether they were sitting alternately or had young ones hatched we could not make out, as we could not see across into the hole, and it was impossible to get near it. We waited some considerable time, but did not see the female come out again, so she may have been in there for a spell of sitting. On our way back to the hotel we saw some boys who ought to have been at school, if the Education Act had been properly enforced, swimming a Puffin in the stream which runs down to the harbour, and a lot of sailors and ostlers looking on at them; they had a string tied round his leg, and as he tried to dive in the shallow pools they kept pulling him back. The Society for the Prevention of Cruelty to Animals apparently had no agents in those parts!

The next day, May the 21st, we walked along the cliff from Boscastle to Tintagel. There were immense numbers of Puffins breeding, especially on two steep rocky islands just off the coast. There was a place on each island where there was a certain amount of soil above the rocks, rather more than an acre on each island, and the Puffins had taken possession of these places, and pitted them all over with thousands of holes, each hole apparently containing its pair of Puffins; there was a

continual flow of Puffins to and from the sea. I have seen lots of Puffins breeding at other places, at Lundy Island, and about Tenby on the Welsh coast, and in the Channel Islands; but I never remember to have seen a colony so thickly populated. On the sea side of these islands, which was more steep and rocky than the land side, both Razorbills and Guillemots were nesting in considerable numbers, as they were also in every place where there was room for an egg, on the cliffs on the mainland. There were places where we could see the eggs quite clearly, though we could not get at them. A great many Herring Gulls were nesting both on the cliffs and on the islands. One of my daughters and I, after a hard climb, got a Herring Gull's egg, which turned out to be quite fresh, though in other nests there were some young birds hatched. A great many pairs of Kestrels were nesting along the cliffs, mostly in quite inaccessible holes. From their numbers I suppose they are not much shot at along the cliffs. This may in some way account for the scarcity of Wheatears, of which we saw very few indeed all along the coast, and that even in most likely places for them, and sometimes in places where at other times I had seen them plentifully. There were also a great many Jackdaws and a few Crows; I suppose these latter are occasionally shot at, for we picked up one dead one. But we did not see a single Chough, even at Tintagel, which is the only place on the Cornish coast where I have ever seen any of these birds, though on the three or four occasions on which I have visited King Arthur's grand old ruin I have always seen one or two there. We did not see any Lesser Black-backed Gulls breeding about the cliffs here, the only gulls we saw being Herring Gulls. At Tintagel, a little way up towards the village, we saw a Ring Ouzel, a young bird of the year, with the ring scarcely developed.

On the 24th we went to New Quay, not very far from Boscastle; we saw a great many Herring Gulls, quite a flock, following the plough like Rooks, and picking up worms and grubs. They came quite as close after the plough and seemed quite as bold as Rooks generally do when engaged in the same manner. We did not see any Black-backed Gulls among the Herring Gulls this time, though when here in July, 1877, I had seen the Herring Gulls similarly employed about the same place, but then there were a few Lesser Black-backs with them.

On the 24th we walked from the hotel, the Great Western, to the headland on the other side of the town (Towass Head), but we did not see very much; one Whimbrel on the sand-hills about there, and the first and only Wheatear any of us had seen during the whole drive. There were a good many Rock Pipits about, mostly with food in their mouths, going to feed their young. In the afternoon we went out in a boat under the cliffs towards Bedruthan Steps. We saw two Guillemots on the water and a good many Herring Gulls on the cliffs; we threw out some biscuit from the boat and soon had a crowd of Herring Gulls about us; a good many immature birds also made their appearance amongst the adults, but where they came from we could not say; there were certainly none on the rocks or at the breeding-places. We also saw one Oystercatcher on the rocks; his mate was probably sitting somewhere near.

On the 25th, Sunday, we walked in the afternoon to Bedruthan Steps, over the cliffs, which in places are very fine. At one of the steepest and most inaccessible places, a pair of Peregrines came at us in a great state of excitement, evidently having a nest somewhere close under us, but the cliff was too crumbling and dangerous to let us look over for the nest. The male bird came at us first, but the female soon joined him on hearing his cry. They kept dashing about close to us for some time till we went on our way; they were very noisy all the time. Kestrels were not so numerous as at Boscastle; we only saw one pair. There were a good many Cuckoos about; probably the Rock Pipits' nests proved useful to them, the last-named birds, as well as Linnets and Stonechats, being common. A great many Swifts were breeding in the cliffs. As we came back by a short cut, more inland, we saw a flock of immature Herring Gulls, feeding in a ploughed field, mostly second and third year birds, though some of them may have been a year older; but there were no adult breeding birds amongst them.

On the 26th we left New Quay for Redruth, stopping for luncheon at Truro, where we saw the worst, least cared for, and I think the dearest museum I ever was in, not even excepting the Guernsey Museum (Zool. 1872, p. 2925). The few birds in it will soon be lost, if a little more care be not taken of them. Amongst others I noted the Spotted Eagle killed at St. Mawgan near St. Columb, in November, 1861; and a Hawk Owl, labelled

"See Yarrell, vol. i., ed. 3rd." A good many of the best birds seem to have been lost since I was there in 1877, or, being too dilapidated perhaps for public view, have been put back out of sight as much as possible. I missed the Alpine Swift, Little Bittern, Little Egret, Glossy Ibis, and others which I had seen before, and which the then curator told me had been killed in Cornwall.

The road from Truro to Redruth passes through the mining country, and hence, as may be supposed, we did not see much in the bird way. At Redruth we walked to a monument on a hill, covered with rough granite boulders and ferns, where we found a Meadow Pipit's nest, with eggs hard set. Between Redruth and Penzance, on the mud at Hayle, were a good many Whimbrel, a few flocks of small waders, mostly Purres, and a great many immature gulls, both Herring and Black-backed Gulls. At Penzance we walked along the beach to the place to which most of the Mounts Bay fishing-boats belong, and where there were heaps of mackerel being constantly landed. Here there was quite a crowd of Herring Gulls and Lesser Black-backs, both immature and adult, but no young birds of the year. In numbers they appeared about equal, the Black-backs perhaps being rather more numerous.

On May 28th we drove to the Logan Rock and walked thence to the Land's End. At the Rock we saw few or no birds about, but as we got nearer to the Land's End we found a few Herring Gulls breeding, and in some very perpendicular places there were Kittiwakes nesting. In some places they were very numerous, every ledge being crowded with them. A good many Razorbills also were breeding, and here and there we could see their eggs distinctly. There were no Lesser Black-backs breeding anywhere; in fact, we could not make out where those seen in Mounts Bay do breed. On the drive home from the Land's End we saw a good many Magpies, and concluded that gamekeepers are not so numerous there as at home. Perhaps a dead horse we saw in a field by the roadside was an attraction to them.

On the 29th we went on board the little steamer which at this time of year goes every day to the Scilly Islands to bring back fish, carrying enormous loads of mackerel. At this time everything is given up to the mackerel, and the steamer was very full

of "empties"; but notwithstanding this, and in spite of the "ancient and fishlike smell," we made ourselves pretty comfortable on the bridge. On our way to the islands we saw a good many Gulls,—Herring, Lesser Black-backs, and Kittiwakes; there were also a few Razorbills and Guillemots about, and a few Puffins; and as we got nearer the islands, one or two Cormorants and a good many Shags. There was also a Tern or two flying about by the sandy beaches. We landed on St. Mary's Island, where I may say, for the information of anyone wanting to go there, there are no less than three hotels. The one we went to is in the old fort, and is called "High House." We found it very comfortable.

On the 30th we were taken to Trescoe, which I found to be a mistake, as we ought to have gone to Annette Island, which is the great breeding-place. Both islands might perhaps be visited in a day, but the boatmen do not care to overwork themselves, and have, moreover, a great idea of the danger of their own seas and the strength of their own tides. The tides, however, did not seem to be very hot, nor was the rise and fall much (25 feet), compared to the hot tides in the Channel Islands with 40 feet rise and fall. On the sail over to Trescoe we saw a few Common Terns about, but they did not appear to be breeding at Trescoe or on any of the islands we passed. We went over Mr. Dorian Smith's grounds, which are very interesting, especially to the botanist, on account of the tropical plants which grow there out of doors; they require shelter, however, from the winds, and directly they get their heads above the shelter of the rocks or trees they are cut back by the wind. Amongst other things we saw Mr. Dorian Smith's Ostriches, bred there last year. On the pond near the grounds were Coots and Moorhens, and the gardener who showed us round said the Moorhens bred there, but not the Coots. After seeing Mr. Dorian Smith's grounds we had a long walk over the island, along the narrow channel between Trescoe and one of the other islands, by an old tower said to have been built by Oliver Cromwell, and back by the sea-side, but saw only a few Common Terns fishing in the narrow channel. On getting back to our own island, St. Mary's, we had a long walk by the shore to the north end, seeing only a few Ring Dotterel, and not finding any eggs. We found one Oystercatcher's nest, however, on the sand—a mere scratch under

some sea-kale that grew there rather plentifully. There were three eggs, quite fresh; we took one. The harbour was full of Kittiwakes; in fact there were thousands of them, and a very good living they seemed to get, especially when the mackerel-boats came in and were unloading into the steamer; there were also some Lesser Black-backs and a few Herring Gulls. I omitted to state that on our way to Trescoe we saw one solitary Great Blacked-backed Gull, wandering about between the islands. The same bird probably appeared the next day (the 31st), as we were going back between the islands in the steamer. A good many Kittiwakes followed the steamer most of the way, but as it was Saturday there were no fish on board, so they had to be content with bits of biscuit which we threw them, and for which they came quite close to the steamer.

On the 1st of June we took a long walk in the afternoon on the beach from Penzance to Marazion, where we saw a small flock of Purres. They were very tame; most, if not all, had the black breast of the breeding-season. There were about a dozen Whimbrels also on the beach, which were likewise very tame, and let us come within easy reach. Amongst other "common objects by the sea shore" we picked up the body of a Raven, apparently not long killed, but the Gulls and Rooks, both of which were plentiful, had cleaned the sternum nicely, so I took it for my collection. There were also a good many dead bodies of Razorbills, Guillemots and Puffins which had been treated in the same way, nothing but a few feathers, the breast-bone and the skull remaining.

On June 2nd we drove over to Helston, on purpose to have a walk by Looe Pool, where we expected to see a good many birds, but were disappointed.

On June 3rd, on our way to the Lizard, we saw only a few Herring Gulls in a ploughed field near Helston, and the Lizard itself (in spite of the beauty of the cliffs and of the well-known Kynance Cove close by) was by no means as interesting to an ornithologist as the Land's End, Herring Gulls, Shags, and Cormorants being the only species noted; none breeding. Close to the Lizard Point a large number of House Martins were nesting.

On June 6th we were at Falmouth, and went for a sail in the river and about the harbour, where were only a few Herring Gulls.

On June 6th we got to Bodmin, and on the 7th were driving over Bodmin Moor. Here we proceeded in line over the moor on both sides of the road, especially on the look out for Purres and their eggs-or young, as Mr. Rodd says they breed on this moor. We had lunch at Trebortha Hall, where I renewed my acquaintance with the late Mr. Rodd's collection, now very nicely arranged by his nephew round the dining-room. The birds are all in beautiful order, nicely cased and arranged; and Mr. Rodd has his own and his late uncle's notes as to the locality in which each was obtained. He kindly took us for a walk about his grounds, where we saw a good many Water Ouzel about the beautiful stream that runs through the grounds. We could not stay very long there, however, as we had to get on to Launceston the same night. On the drive from Launceston to Tavistock, which is very pretty, but hilly, across the Tamar and by Lidford Falls, we saw no birds worth noting.

On June 10th, on the way from Launceston, over Dartmoor to Moreton Hamstead, one or two Water Ouzels and Summer Snipe appeared on the stream at Two Bridges, and a few Peewits on the moor. Mr. Pollard, the landlord at the hotel at Moreton Hamstead, had a fine case of three Common Buzzards, all shot in the neighbourhood. He had also another, shot by himself close to the town, which was dark on the back and very white on the breast and under parts, and which accordingly he had put down as a distinct species, but (as I told him) I could make nothing of it but a Common Buzzard. He also had a Hoopoe, killed somewhere near Moreton. From that place to Exeter, and from Exeter home we did not see anything worth notice. The circumstance which most surprised me in the whole drive was the almost total absence of Wheatears; we did not see half a dozen, though in many places we passed I had on other occasions seen them in considerable numbers. It was pleasant to find that there was still at least one pair of Peregrines breeding in the West.

NOTES ON SOME MOLLUSCA COLLECTED IN SURREY.

By T. D. A. COCKERELL.

THERE is, perhaps, no county in England so rich in Terrestrial Mollusca as Surrey, and no part of Surrey is richer than the Caterham Valley. This being the case, one naturally enquires, Has this district been properly worked out? What records have we? Is there not much yet to be done? On looking over the public records, it appears that this district is by no means so well known as it might be, and that much may yet be done before we can say that there is nothing left for future observers. It occurs to me, therefore, that a list of even two days' captures may be of some service, as indicating the molluscan fauna of the district. It is as follows, the species being given in the order of their occurrence:—

Sept. 7.—(1.) Mollusca between Caterham and Godstone, commencing at Caterham.—*Hyalina nitidula*, *Helix pomatia*, *Cyclostoma elegans* (besides the type form there also occurred the var. *fasciata*, and a very dark and almost unicolorous form, and also a greyish white variety tinged with brown at the apex: this latter is also found at Folkestone, Mr. J. H. Ponsonby having given me specimens from that locality; the Folkestone specimens are whiter and the markings are somewhat less distinct than in my Surrey one), *Helix hispida*, *H. caperata*, *H. cantiana*, *Hyalina glabra*, Jeff., *Helix rufescens* and var. *rubens*, *H. rotundata*, *H. hortensis* var. *incarnata*, band-formula 12345 (for explanation of band-formula see 'Journal of Conchology.');

H. virgata and bandless variety, *H. aspersa*, *H. ericetorum* (also a variety in which the black bands are wanting, but traces of colourless ones are visible); *H. hortensis* var. *lutea* 00000, and *lutea* 1,345, *Clausilia rugosa*, *Hyalina cellaria*, *Arion hortensis* (two varieties, the first light grey with bands, sole of foot grey, and the second dark grey, also banded, with a yellow sole); *Limax agrestis*, *Bulimus obscurus*, *Cochlicopa lubrica*, *Carychium minimum* (living under rush leaves in a wood), *Arion hortensis*, var. yellowish below, grey above, bands very indistinct; *Helix hortensis* var. *incarnata* 00000 and *lutea* 12345, *H. aspersa*, var. having the usual light mottlings nearly white, and the dark markings of the type replaced by a light reddish

brown colour. This is seemingly intermediate between the type and var. *exalbida*. My brother has taken a similar variety at Minster, in Kent.

(2). Godstone to Oxstead.—*Anodonta cygnæa*, *Limnæa auricularia*, *Limax lævis* (I named this *lævis* on comparison with the descriptions of that species given by Jeffreys and Rimmer, but I should very much like to see good coloured drawings of this and other slugs, to aid in identification, though I fear that such a thing is not to be had); *Limnæa peregra*, *Sphærium corneum*, *Hyalina glabra*, *Helix hispida*, *H. aspersa*, *Planorbis contortus*, *P. albus*, *Helix rotundata*, *H. rufescens*, *Cochlicopa lubrica*, *Hyalina crystallina*, *H. pura*, *Vitrina pellucida*, *Hyalina nitidula*, *Helix pulchella*, and var. *costata*, and *Vertigo pygmæa* (amongst moss on a wall).

(3.) Oxstead to Warlingham.—*H. aspersa*, *H. rufescens*, *H. arbustorum* (dead shell), *H. hortensis* var. *lutea* 00000, *Cochlicopa lubrica*, *Hyalina nitidula*, *Helix ericetorum*, *H. concinna* var. *alba*, *H. caperata*, *Hyalina radiatula*, *H. crystallina*, *Helix concinna* (type form), *H. pomatia*, *H. cantiana*, *Cyclostoma elegans*, *Helix hortensis*, *Hyalina glabra* (many conchologists imagine this shell to be rare, it is certainly not so in Surrey), *Clausilia rugosa*, *Limnæa peregra* (a small variety having an elongated spire); *Sphærium corneum*, and *Planorbis nautilus* (type form).

Sept. 9th.—Between Kenley and Caterham Junction.—*Cyclostoma elegans*, *H. aspersa*, *H. cantiana*, *H. pulchella* and var. *costata*, *H. nemoralis* var. *rubella* 123(45), *H. caperata* and var. *ornata*, *Limax agrestis* (type form), *Hyalina nitidula*, *Helix rotundata*, *Cyclostoma elegans* var. *fasciata*, *Cochlicopa lubrica*, *Hyalina glabra*, *Vitrina pellucida*, *H. concinna*, *H. hortensis* var. *lutea* 12345 (some specimens had the band distinct and well coloured, but in others the bands were very nearly transparent, with very little colour); *H. rufescens*, *H. virgata*, *Clausilia laminata*, *H. cantiana* var. *albida*, *Hyalina cellaria* and var. *albida* (some of the specimens were unusually large); *Arion hortensis*, var. dark grey, banded, sole of foot yellow; *Helix aspersa*, a somewhat conical variety, *Bulimus obscurus*, *Helix virgata*, var. having the bands indistinct, and only visible near mouth of shell; *H. ericetorum*, *Arion ater*, var. entirely very dark brown; *A. hortensis*, var. light grey, with bands; *H. nemoralis*, vars. *rubella* 12345, and *libellula* 12345; *H. hortensis* var. *incarnata*

12345 (bands light in colour and indistinct); *Limax agrestis*, var. entirely light brown; *Helix hortensis* var. *arenicola*.

In conclusion, I will give a short list of some of the more interesting Mollusca I have taken in Surrey, not mentioned above. *Bythinia tentaculata* monst. *decollatum*, Barnes; *Bythinia leachii*, near Guildford; *Planorbis lineatus*, Barnes; *P. carinatus* var. *disciformis*, near Guildford; *P. corneus* var. *albinos*, Kew Gardens; *Physa acuta*, still abundant in a water-lily tank at Kew; *Cornulus* (*Zonites*) *fulvus*, Haslemere; *Helix aculeata*, Warlingham; *H. aspersa* var. *exalbida*, Warlingham; *H. rotundata* var. *alba*, near Addington; *H. lapicida*, Warlingham, Shirley near Shiere, and Haslemere; *Clausilia rolpheii*, near Dorking; *C. biplicata*, Hammersmith, on Surrey side of river; *Cochlicopa* (*Azeca*) *tridens*, and var. *crystallina*, between Reigate and Dorking.

The following may be expected to turn up in Surrey, but have not, so far as I am aware, been yet recorded:—*Planorbis glaber*; this I have found at Paddock Wood, in Kent. *Amalia gagatis*; Mr. Roebuck informs me that this occurs in Kent, and it has also been taken in Sussex. *Testacella maugei*; I believe this has occurred in Middlesex. *T. haliotideia* is found in Surrey, Mr. K. McKean having kindly given me a specimen from Mitcham. *Vertigo minutissima*; this my brother has taken in East Kent. *V. moulinsiana*; the nearest locality I can find for this is in Hertfordshire. *Helix rupestris*, too, has been taken in Sussex, and may yet be met with in Surrey.

NOTES AND OBSERVATIONS ON BRITISH STALK-EYED CRUSTACEA.*

BY EDWARD LOVETT.

Gebia deltura, Leach.

THIS species differs somewhat from *G. stellata* in being considerably larger. Bell seems to have some doubt whether it be really a distinct species: if it be, it is certainly much more abundant; but if, on the other hand, the two forms be different

* Continued from Zool. 1883, p. 218.

growths, or local divergencies of the same species, the form known as *G. stellata* must be of rare occurrence, as I have not met with it in Jersey, whence I have obtained scores of *G. deltura*. Bell, however, says that the distinction between the species was discovered by Mr. J. D. C. Sowerby.

The colour of *Gebia deltura* is a dull yellowish brown, the anterior portion of the carapace is thickly bristled, and the hands are furnished with tufts of stiff hairs arranged in lines. The abdominal segments widen considerably at the fourth and fifth somites, and the middle plates of the tail are nearly square.

The eggs of this species are exuded in the early part of the year; they are of a rich amber tint and translucent, becoming opaque as they mature. Like all burrowing species, *G. deltura* carries comparatively few ova, the zoeæ being doubtless not so exposed to the dangers as are those of less protected species, though what the early life-history of this species is I cannot say, nor do I think its zoea-form has ever been taken from its natural habitat.

Gebia deltura, as above stated, is a burrower, and is therefore but seldom met with. Bell even goes so far as to state that the only specimens he ever saw were those in the British Museum. Jersey does not appear to have been worked in those days, and I should imagine that it is the home, so far as our seas are concerned, of many of our rare southern forms, and this amongst others. Being a burrower, and one, too, that forms "runs" many feet in length and of considerable depth beneath the surface of the sand, it is a somewhat difficult task to dig it out, as that must necessarily be done at low tide, when the sand-bank is dry. I should imagine, however, that it either emerges altogether from its burrow when the tide rises, or at any rate comes nearer to the entrance of it; for, when digging for any of these fossorial crustaceans, I have noticed that the proper time to select is when the tide is flowing, and has almost reached the spot selected. Again, they have been recorded as occurring in the stomachs of fishes of the *Raia* genus, and the Ray could not obtain them for food if they were two or three feet deep in the sand.

Gebia deltura is recorded from Plymouth and Jersey, the specimens I have seen being all from the latter place, and number over one hundred; so that, considering the difficulty of

obtaining it, I should consider that it was a local species, being confined to one or two favourable spots, but occurring there in considerable numbers.

Axius stirhynchus, Leach.

This allied genus is represented by one British species, which resembles in general form the foregoing. It, however, possesses many characteristic differences, and is much more allied to the true Lobster type.

The carapace is somewhat cylindrical, but compressed laterally, and the abdominal somites are stoutly arched and massive; the anterior pair of legs are heavy and Lobster-like, but slightly hairy; the second pair possess small pincers, and the remaining three pairs are simple. The tail-plates are rounded, the central one being, however, triangular and armed with two spines.

The ova of this species are few in number, large in proportion to the size of the animal, and amber in tint. I have seen females of *Axius stirhynchus* carrying ova in November, which is late, unless the species be double-brooded, which is possible. The zoea is very similar in appearance to that of the Northern Stone Crab, *Lithodes maia*, but of course smaller.

The colour of this species is somewhat variable; Bell describes it as a pale reddish brown, but it is more frequently of a dull dirty white, though I have seen it pink. One specimen in particular in my own collection is exceedingly beautiful, and when alive was of a more delicate tint than the finest pale pink coral.

A. stirhynchus burrows in sand, mud, and detritus, though usually, I believe, in the two latter materials. If placed alive in a jar of sea-water it endeavours to bury itself at once, and will vainly endeavour to hollow out the glass bottom of the jar with its apparently clumsy claws.

It has been recorded from Plymouth, Sidmouth, and Jersey; at the last-named place it may be most readily met with.

Calocaris macandreae, Bell.

This extremely rare species is described and named by Bell, but, as I have never yet obtained it myself, nor seen it, except in the British Museum, I give an outline of his description. There is also a notice of it from Moray Firth in the British

Association Report for 1866, but beyond that records seem scarce.

The carapace of this species is somewhat cylindrical, with an acute triangular rostrum, and a raised medial line down the whole length of the carapace; the anterior feet possess long, compressed, grooved, and granulated fingers; the second pair are similar, but much smaller, and the remainder are simple. The abdomen is shorter and less cylindrical than other burrowing forms, and the colour of the animal is a pale pink or rose.

One of the most wonderful characteristics of this species alluded to by Bell is that it possesses eyes of a rudimentary character, having neither colouring pigment nor corneæ; and he states that, as this crustacean occasionally inhabits depths of one hundred and eighty fathoms, where it burrows in the soft mud, distinct vision would be useless. This is an exceedingly interesting fact, and doubtless the great depth of its habitat, and the fact of its being also a burrower, accounts for its being usually termed "rare."

Astacus fluviatilis, Auct.

This sole representative of our fresh-water Stalk-eyed Crustacea is widely distributed, and should be by this time well known, not only on account of the early writings of Réaumur and Rathke, but especially by reason of that valuable work by Prof. Huxley entitled 'The Crayfish: an Introduction to the Study of Zoology.' The mere mention of this work will show how unnecessary it would be for me to enter into any description of this animal in a paper like this, so that I shall merely give an outline of its characteristic features, together with a few observations of my own upon its habits.

Astacus fluviatilis is very much like a small lobster, which, instead of being smooth and black, is somewhat rough and of a dirty greenish brown colour: this tint, however, varies considerably, owing, I am inclined to think, to the nature of the locality in which the particular specimens are obtained. I have seen some of a rich warm sepia-brown, others of a pale sage-green, and others again of a bluish tinge; but the usual prevailing colour is, as I have said, of a dirty-looking greenish brown, so much resembling the bottom of a stream that it is

almost impossible to see the animals, even when they emerge from cover.

The length of the River Crayfish is about three or four inches, though they sometimes exceed this. I have two specimens which are nearer six inches in length, with claws nearly an inch in width; but this size is very unusual, as I never saw many so large, although I have caught, or seen caught, many thousands of crayfishes.

The carapace is granulated, and the regions are well marked; the rostrum is pointed, with a spine on either side. The first pair of legs, or "claws," are massive and nearly equal in size, but often through injury they are very unequal, as is the case with marine crustaceans; the second and third pairs of legs are didactyle, and their owner makes very good use of them when foraging about at the bottom of his native brook.

The eggs of this species are very large in proportion to the animal, consequently there are fewer of them to one parent than is the case with most other crustaceans; in fact, the eggs of *Astacus fluvialtilis*, an animal four inches in length, are individually about four times the size of the eggs of the Sea Crayfish, *Palinurus vulgaris*, which is an animal reaching a foot in length, but which has reached (as I have measured) the enormous size of over two feet from rostrum to tail. But the number of eggs carried by the latter is tremendously in excess of the number carried by the former, and the reason is, I think, not far to seek. The Sea Crayfish, in consequence of its habits and surroundings, is at a great disadvantage in propagating its species, for considering what its zoea is, and also that it is a favourite food, until it is old enough to fight its own battles, for a number of fishes and other natural enemies, the wonder is that any reach maturity at all. *Astacus fluvialtilis* has more victims than enemies; the narrow water-courses in which it lives contain but few foes, perhaps the only one being fish, and, so far as I have noticed, fish were not abundant in crayfish-brooks; besides, the Crayfish burrows into the clay-banks of its brook, and, as we have already seen with regard to the marine Crustacea, burrowing species carry but few ova.

As Prof. Huxley remarks, *Astacus fluvialtilis* is usually found in water-courses of a calcareous district, especially when such

streams cut through a clay deposit. The spot where I have seen and caught them is Cricklade, in Wiltshire, where there is a good deal of water in the shape of brooks and swiftly-running streams which cut their way through the Oxford-clay of the oolitic limestone formation. Most of these brooks have steep banks, and the bottoms instead of being weedy, are often stony, so that these creatures are thoroughly at home. Plenty of running water, shade, coolness, and cover, but I do not think there is always plenty of food, for they must propagate to an enormous extent, judging from the fact that I once caught seven hundred in one evening in a small length of brook, and I have often heard of big hauls being made night after night in the same spot, and they never seem to get "low," so to speak.

I will briefly describe a "craw-fishing" expedition. Having procured a dozen or more "nets" (a piece of string netting of small mesh stretched across an iron hoop about a foot in diameter, suspended horizontally by string), and a large piece of raw bullock's liver, we started off just before sundown, to a favourite brook. Having selected a convenient stretch of brook for the evening's fishing, we baited each net by tying a small piece of liver as firmly as possible to the centre, and lowered the nets into the middle of the brook, running them out over a forked stick, for any splashing or disturbance is to be avoided, and marking the position of each string by a piece of white paper pegged into the bank.

The nets having all been lowered into the brook about twelve or twenty feet apart, we proceeded to number one, for it was now almost dark, and hauled it up, using the forked stick for this purpose. Two or three crustaceans were on the net, which showed us they were "running," and after working the nets for an hour or two we find we have bagged perhaps three hundred brace. It is a curious fact that although crayfishes may be well on the "feed" one evening, it will be impossible to get a single one on another, when circumstances are apparently similar. I have often noticed this apparent anomaly in connection with sugaring for moths. But when *A. fluviatilis* is "running" freely, then it is indeed sport. I have myself hauled up a net which was literally piled up with a mass of about twenty crayfishes struggling to get at the bait. A friend

of mine once caught fifty-three crayfish with a rod and line baited with worms.

A curious way to keep the crustaceans from dying, when put into the basket of the fishermen, is to put a handful of stinging-nettles in with them. I could not account for this fact at all, although, of course, most crustaceans will live for a long time in a moist atmosphere; in fact, if a crayfish be suddenly placed into deep water, after having been for a short time out of that element, it will probably die.

Wishing to test the theory of the nettles, I had some crayfishes sent to me at Croydon, and they reached me healthy and vigorous, packed in nettles. I placed two or three of the strongest in a tub of water (tap water, not river water); in an hour they were dead. The remainder I placed in an open hamper with some nettles; I was careful that the nettles were not wetted, but just as they were gathered. The crayfishes lived for several days, but ultimately died one by one, the nettles being renewed every few days; one specimen, however, lived for the comparatively long period of twenty-two days without a drop of water or any food, but simply supplied with the nettles.

Another *Astacus*, which I obtained subsequently, lived for nearly a year in water an inch and a half deep, with mud at the bottom and a broken flower-pot as a hiding-place, into which it retreated backwards, guarding the entrance with its massive claws. It was a very fine specimen, and did not exuviate its shell. It fed freely on worms, but unfortunately died from a sudden increase of temperature in the early part of the summer, which prevented my keeping its little pond cool enough. Prof. Bell relates an interesting anecdote of a "domesticated crayfish."

Although this crustacean is "not highly esteemed" in this country, I think it must be due to the fact that to be appreciated it must be boiled as soon as captured, and eaten as soon as boiled. On the Continent it is much more largely used, as travellers there are well aware. I believe it might be successfully farmed in this country, if ever a free demand sprang up for it: for with judicious feeding and preservation I do not think that twenty or thirty thousand would be an unreasonable number to expect from one brook in a season.

(To be continued.)

ORNITHOLOGICAL NOTES FROM DEVON AND CORNWALL.

BY JOHN GATCOMBE.

THE following notes made by me during the past year may be of interest to your readers. On January 1st I examined a curious hybrid between a domestic fowl and common Pheasant, killed in a wild state at Membland, on the eastern side of the River Yealm, the property of Mr. E. C. Baring. It was a remarkably fine bird, weighing within one ounce of six pounds. The plumage exhibited equally the characters of both species. The keeper, who shot the bird, said there were several similar specimens in the covers, but he thought none so large as the one here described. He considered it to be a cross between the Game-fowl and Pheasant, but from its markings I should say it was more likely to be a hybrid between the Pheasant and "Gold-spangled Poland," especially as it showed an unmistakable sign of a crest; but this, of course, is only surmise on my part. Strange to say, it had a very large and long spur on one leg only, the other leg being similar to that of an ordinary hen Pheasant.

In the Plymouth Market about this date I saw a Woodcock with five toes on one foot, the hinder toe having another quite perfect growing from it. I also observed another with several pure white feathers at the back of the neck.

Plymouth Sound, towards the end of January, was full of Razorbills, Gulls, and Scoters. On the 28th, after a severe gale, there were three immature Black Redstarts about the rocks at the Devil's Point, Stonehouse, amongst them an adult male with black-throat, breast, and white patch on the wing.

On January 31st a Cornish Chough was brought to the Stonehouse birdstuffer, making unfortunately the fourth trapped in a gin within two months. The stomach of this bird contained the remains of beetles and some fine sand. A few days later I observed, through a powerful telescope, a curious malformation in the beak of a Jackdaw, the upper mandible being so short that it did not extend beyond the ends of the feather covering the nostrils, the lower one being apparently of the usual length. The bird seemed to be in good condition, and after a while flew

down from a tree on which it was perched to feed with others on the mud-flats and sea-shore.

On February 2nd two Hawfinches were brought from Car-green, near Saltash, by the side of the River Tamar. Their stomachs were filled with fragments of the kernels and shells of some stone-fruit. After some severe gales many Great Black-backed Gulls made their appearance in the harbour and Sound. Kingfishers were numerous, and I saw a fine adult bird of this species which was knocked down by a boy with a stone. On February 28th there were more Black Redstarts on the coast, and I observed *Larus ridibundus* with a complete black head.

On March 1st Waterhens were in full breeding-dress. By the 10th the Chiffchaff was to be seen at Brent, and on the 11th I remarked a Wheatear at the Devil's Point. This I consider a rather early appearance. The wind at the time was S.W., and the weather mild. On the 21st an adult male Peregrine was killed at Wembury, close to the breeding-place of the Herring Gulls, where a pair used annually to nest. The stomach contained no food, but several long, thin, white intestinal worms. On the 22nd an immature Red-throated Diver was obtained, a species now becoming very scarce on our coast. On the same day the Chiffchaff was seen and heard singing in a small garden, or rather court, quite in the centre of the town. By the 28th the Blackcap was also in full song, and the Corn Crake also was heard.

On April 4th I purchased, in Plymouth Market, a common Ringdove, which at that late date did not show the least sign of the usual white patch, nor green metallic tint on the side of its neck; the whole plumage, too, being suffused with a strong tinge of brown leads me to suppose it must have been one of a very late brood of the previous year.

About this time our birdstuffer received a Common Buzzard, a Merlin, and a Lesser Spotted Woodpecker for preservation, all of which were killed in the neighbourhood.

Mr. Stephen Clogg, of Looe, informed me that on May 5th he observed Swifts for the first time, and I saw some myself the following day at Plymouth. Five Dotterels (*Eudromias morinellus*) were sent for preservation from Dorset, in which county they were obtained. There were eight in the "trip" or flock, five of which were killed in two shots. On examination I found

their stomachs crammed with the remains of small beetles. Our birdstuffer also received two adult Turtle Doves, two pied Blackbirds, and one pretty variety of a young Rook. At Brent I remarked some young Dippers apparently as large as the old ones. When watching this bird through a powerful telescope I have often been struck with the singular habit it has of continually winking its eyes, the white under lids rendering the action very conspicuous, and causing the incessant twinkling, as it were, to appear quite in keeping with the white froth and bubbling water rushing past the rock on which it stands.

On June 20th I visited the breeding-station of the Herring Gulls at Wembury, on the western side of the River Yealm, and found that about the usual number had nested there; but few young ones were to be seen, as they had grown large enough to hide themselves on our approach. There is another colony of breeding birds close to Rhame Head, on the Cornish coast, not far from Plymouth.

Swifts were very plentiful during the month of July; Swallows, on the contrary, were scarce. I examined a Swift which had fallen dead in the street after having struck against a telegraph-wire. On the 10th a Great Spotted Woodpecker was brought to our birdstuffer for preservation.

On August 5th I examined a greyish buff variety of the Spotted Flycatcher, which showed no trace of the usual dark markings on the head and breast. On August 29th a Storm Petrel was captured which had lost the inner toe and web of one foot. The same day, on visiting Penzance, I saw, at the shop of Mr. Vingoe, a Manx Shearwater in the flesh, which had just been brought from Scilly.

On Sept. 19th a Common Buzzard was obtained near Plymouth, and a Sparrowhawk was captured in the middle of the town, having dashed at a Goldfinch in a cage. On the 25th a pretty variety of the Hedgesparrow was obtained. The head and back of the neck were pure white; the thorax and under parts of the usual colour; the back, wings, and tail much diversified with white; bill and legs yellowish white. On the 29th a Greenshank was forwarded from Wadebridge, Cornwall. The stomach contained the remains of a small shrimp.

NOTES AND QUERIES.

MAMMALIA.

Note on a Weasel and Wren.—On the afternoon of the 23rd November last I watched a Weasel running about on a garden lawn at Northrepps, and examining in succession the roots of the standard roses and other shrubs planted at intervals on the grass. This operation evidently excited the attention of a Wren, which perched on every bush visited by the Weasel, flying to each immediately the Weasel reached it, but not pursuing the animal on the open grass. This continued for some minutes till the Weasel and Wren both disappeared in an adjacent plantation.—J. H. GURNEY (Northrepps Hall, Norwich).

The Greater Horse-shoe Bat not a Yorkshire Species.—With reference to the editorial note at p. 483 of 'The Zoologist' for December, I may say that the bat which Mr. James Carter took at Carperby, in Wensleydale, was not this species, but the Great Bat, or Noctule, a species which is by no means uncommon in Yorkshire. Mr. Carter most kindly sent me the specimen for inspection soon after he obtained it. The Berkshire record would therefore appear to be about as far north as the species ranges in Britain.—WILLIAM DENISON ROEBUCK (Sunny Bank, Leeds).

BIRDS.

Hybrid Wagtails.—In the course of several visits to Mr. Swaysland, during a recent stay at Brighton, I saw, among his large collection of stuffed birds, three very remarkable ones, of which he kindly permitted a full examination to be made. There is no doubt that they are hybrids between the Grey Wagtail (*Motacilla melanope*, Pall.) and the Pied Wagtail (*M. lugubris*, Tem.), bred in the aviary of Mr. T. J. Monk, at Lewes. The first cross was between a cock Grey Wagtail and a hen Pied Wagtail; the second cross between the male hybrid so bred and a hen Pied Wagtail. Only one of the first cross seems to have been preserved. Though certainly more like a Pied than a Grey Wagtail, its plumage furnishes irrefutable evidence of the hybridism. It is a rather larger bird than a Pied Wagtail, and its tail is longer. The throat and chin are white, while on the upper part of the breast there is a narrow semicircular gorget of black spots, below which comes a wash of bright yellow, and a tinge of the same colour extends to the belly. The progeny of the second cross are just like young Pied Wagtails in autumn, but with a little more yellow tint suffused about the plumage. If it is possible to carry inter-breeding to such an extent in the Wagtails, a genus of birds not previously known to have

interbred, why should there not be frequent hybridism in a state of Nature among many birds which have never been suspected of it? Who could possibly distinguish a hybrid between the Pied Wagtail and the White Wagtail, the Chiffchaff and the Willow Wren, or the Lesser Redpoll and the Mealy Redpoll, when the birds themselves are almost indistinguishable? Although the first cross in Mr. Monk's hybrid Wagtails bespoke its origin in its plumage, the second cross showed very little signs of it—practically none at all. In the same way, hybrid Ducks, which not only did not show their origin, but which did not show hybridism at all in their plumage, have been bred in confinement. These have been male or female, neither sex preponderating, and such birds, for aught one can say, may often occur in a state of freedom.—J. H. GURNEY, jun. (Northrepps, Norwich).

Cuckoo Flying at Night.—On the morning of July 12th a Cuckoo was found dead in our garden; during the previous night he had flown violently against the stay ropes of a tent which is pitched, during the summer months, in front of our house. He was not damaged in any way externally, except that most of the feathers of the gullet were rubbed off; but, on dissection, the brain and all the internal organs of the body were found to be gorged with blood. This was the apparent cause of death, as no local injury could be detected. The bird was a young male of the fleeting year, and was probably on its annual immigration, which, from this occurrence, appears to take place during the night.—A. MATTHEWS (Gumley, Market Harborough).

Nesting of the Dipper.—Referring to Mr. Edward's interesting account of a Dipper or Water Ouzel's nest on a boulder (Zool., 1884, p. 468), I may state that a few years since a pair of these birds built their nest in a similar situation here, on a large mossy boulder in the middle of a rapid stream in the River Burn. The nest was about a foot and a half from the surface of the water; and, to the best of my recollection, the young were reared in safety, though a freshet would have swamped the structure. In 1883 I found a nest built in the fork of a small tree which overhung the river, a situation I have never previously heard of. The nest was placed about seven feet up the trunk, which was covered with moss, but, owing to the angle at which the tree leant across the water, the nest was only about four feet from the surface. It was not in any way worked round the branches but simply rested in the fork, and was of unusually large size. Water Ouzels build, year after year, within a few yards of some chosen spot for which they seem to have a great liking. I have seen a nest built on the face of a perpendicular bare scaur, where the green nest was, when first erected, a very conspicuous object, owing to the want of surrounding vegetation; but as the materials withered and

became soiled by the washing and dropping down upon it of small portions of the cliff, it might easily have been passed unnoticed. Another singular site for a Dipper's nest was between two beams of a sluice, over which pedestrians constantly passed. In this instance, again, the nest showed very prominently, yet frequently escaped observation owing to its very conspicuousness; and the young would, in all probability, have flown in safety had not some four-footed thief discovered the nest and sucked the eggs.—THOMAS CARTER (Burton House, Masham).

Lesser Black-backed Gull and Rock Dove on the Yorkshire Coast.

—My friend Mr. Carter's excellent paper in 'The Zoologist' for November last leads me to offer a few remarks. As regards the breeding of *Larus fuscus*, he alludes to having seen a few eggs in the possession of some climbers returning from their day's work. Again (p. 447), he mentions having seen a pair of these birds at the end of June on the Filey range of cliffs. Neither of these circumstances furnishes sufficient evidence that this Gull has bred on the Yorkshire coast, and the fact remains to be proved. The first item of this circumstantial evidence, above referred to, is eminently unsatisfactory, as has been already pointed out by the Rev. Mr. Tuck (Zool., Dec., p. 485); while the fact of the presence of this species on our coast in summer is alluded to by me in the 'Handbook of Yorkshire Vertebrata' (p. viii); and if this were to be considered evidence of breeding, then, by the same method of argument, we must consider the Common Scoter and the Red-throated Diver to be also breeding species. I should not, however, be at all surprised to hear that the Lesser Black-backed Gull did occasionally breed on the Yorkshire coast, but, as yet, there is no satisfactory evidence that such is the case. As to the Rock Dove's eggs obtained by Mr. Carter being undoubtedly those of that species I do not feel at all sure. It is rather singular that in so good a list of species as he has given for the district no mention is made of the Stock Dove, a bird which is now very numerous in the range of cliffs visited by Mr. Carter. These facts make it not at all improbable that the Stock Dove's presence was overlooked; and, if such were the case, then, unless the parent bird was identified on leaving its eggs, it would be difficult indeed to say to which of the two species his eggs belong.—WM. EAGLE CLARKE (Leeds).

Hybrid Black Grouse and Pheasant.—Major Gregory Knight, of Leicester, has recently presented to the Leicester Town Museum a beautiful cross between a Black Grouse and a Pheasant, which he shot on 18th November, on the property of Mr. John Jones of "The Groves," near Craven Arms, Shropshire. As it arrived in the flesh I was enabled to make a thorough examination of it. It weighed $3\frac{1}{4}$ lbs., and measured in length (from tip of beak to end of middle or longest tail-feathers) 25

inches; culmen, a little over 1.1 inch; wing, from carpus to tip, 10.25 inches; tail, 8.75 inches; tarsus, 2.50 inches; middle toe, 2.25 inches (excluding nail). Sex (by dissection), young, male. The crop contained—amongst other ordinary food—acorns. The legs and toes resemble those of a Pheasant in colour, shape and size, and are feathered in nearly the same manner, the feathers ending just below the tibio-tarsal joint, and not continuing on the front of the tarso-metatarsus to the toes, as in the Grouse. Broadly speaking, this handsome bird may be described as being most like a Black Grouse in the head, neck, and breast, and like a Pheasant or Game-fowl in the wings, tail and legs. The weight and dimensions are beyond those of an ordinary Black Grouse, and especially is this observable in the breadth of the wings and the length of the neck (this was remarked on by Major Knight when the bird was first shot). The figure on page 311 of Yarrell's 'British Birds' (1st edition), that of a hybrid killed in 1839, by Lord Howick, near Felton, in Northumberland, might, curiously enough, be an exact representation of the present specimen; and the colour of another specimen mentioned on page 310 describes it almost accurately. I am disposed to think that the male parent was a Pheasant, possibly a ring-necked one, from the fact of four or five small white feathers appearing on the neck of the hybrid.—MONTAGU BROWN (Curator, Town Museum, Leicester).

Wryneck nesting in a Sand Martin's Burrow.—About the end of June last Mr. L. W. Bartlett visited a colony of Sand Martins which have their burrows in the side of a small sand-pit on Tadmorton Heath. As he was about to put his hand into one of the holes a brown bird flew out very quickly and entered some bushes near at hand. At the end of the burrow he found seven pure white eggs in a very slight nest of dry grass (probably an old Martin's), and considerably incubated. He showed me some of the eggs a few days afterwards, and I told him I thought they were Wryneck's, but, as the position of the nest was curious, I asked him to let me submit one of them to a competent authority. I therefore herewith enclose it for your inspection. Mr. Bartlett was unable to get another sight of the bird although he watched for a considerable time.—OLIVER V. APLIN (Great Bourton, Oxon).

[In size and shape the egg sent certainly resembles that of a Wryneck.—ED.]

The Birds of the Burlings.—With reference to Major Feilden's note on the Burlings (p. 470), I may state that I have before me an extract from the 'Boletim' of the Geographical Society of Lisbon (4th series, No. 9, pp. 409-452), giving an account of a botanical excursion to these islands in May, 1883, by M. J. Daveau, to which is appended a zoological notice of the group by M. Albert A. Girard, assistant in the Zoological

Museum of Lisbon. M. Girard, from information obtained through M. Daveau, from Senhor Alfiedo B. da Silva, the principal lightkeeper on the Berlenga Island, and who has been resident there several years, gives the following list of birds which are known with certainty to frequent the Berlengas and Farilhoes groups. The Portuguese names are given with each:—

1. *Ruticilla tithys*, Scop. "Rabiruivo." Berlenga; very common.
2. *Upupa epops*, L. "Poupa." Berlenga; rare.
3. *Corvus corax*, L. "Corvo." Berlenga; a few.
4. *Passer domesticus*, L. "Pardal." Berlenga; very common.
5. *Columba palumbus*,* L. "Pombo bravo." Berlenga; rare.
6. *Turtur auritus*, Gray. "Rola." Berlenga; not common.
7. *Scolopax rusticola*, L. "Gallinhola." Berlenga; rare.
8. *Uria troile*, L. "Airo." Berlenga, Farilhao grande, &c.; common.
9. *Mormon arcticus*, L. "Gallo do mar." Berlenga; in small numbers.
10. *Phalacrocorax carbo*, L. "Corvo marinho, Galleta." Berlenga, Farilhao grande, &c.; very common.
11. *Larus argentatus*, Brnn. "Gaivota." Berlenga, Farilhao grande, &c.; very common.
12. *Puffinus kuhlii*, Boie. "Pardella." Berlenga and Farilhao grande; not very common.

Nos. 1, 5, 8, 10, 11 and 12 are stated to breed, and doubtless also No. 4 does so. Besides these twelve species thirteen others are named, which do not seem to have been exactly identified by M. Girard; but he states that if they are known at the Berlengas by the same name as in the neighbourhood of Lisbon, they are as follows:—*Muscicapa grisola*, rare; *Phyllopseuste* sp., common; *Motacilla alba*, common; *Ædicnemus crepitans* and *Charadrius pluvialis*, rare; two other species of *Charadrius* which are abundant; *Vanellus cristatus*, rare; *Numenius arquata*, increasing in number; two species of Gull, viz.: *Larus marinus* and *L. fuscus*, the latter also found in small numbers at Farilhao grande; also two other rare species known under the local names of "Furabrichos" and "Turrãos." M. Girard states that bats have not been observed by Senhor da Silva.—J. J. DALGLEISH (Edinburgh).

Singular Death of two Magpies.—I can vouch for the accuracy of the following statement relative to the death of two Magpies, apparently from broken hearts. In early spring two Magpies built in a poplar tree in a small orchard situated in the Parish of Gunwalloe, Cornwall. The two birds, however, made such a noise that the proprietor of the orchard, who dwelt close by, destroyed the nest and its contents, namely six eggs. The

* Probably *C. livia* is the species here intended.

birds, nothing daunted, built a second time, and laid five eggs. The annoyance of their noisy throats, however, caused the proprietor to cut the tree down. The birds then retired to a neighbouring orchard and built a third time; but, the nest being again destroyed, they returned to their original nesting-place, and for the fourth time built in a thorn tree; there, for a time, they seemed to defy the spoliator, until some boys managed, with great difficulty, to get at the nest in the thorn and destroy it and its six eggs. This was on May 15th. On the 16th the proprietor was walking in the garden, and under the very tree where the Magpies last built he found both birds quite dead, side by side. They wore a perfectly natural appearance, not a feather displaced or ruffled, and there was no other assignable cause than that above stated to account for death. It is only fair to the proprietor to add that it was no feeling of cruelty that induced him to destroy the nests, but simply to stop the unceasing noise which the birds made.—EDMUND RUNDLE (Porthleven, Helston).

Chiffchaff in Ireland in Winter.—On the 21st of November last I shot a Chiffchaff while it was flitting about the branches of a fir tree. I was at the time watching a party of Golden-crested Wrens busily engaged in search for insects, when a Chiffchaff appeared on the same tree, and I shot it to make sure of the species. On the 20th of January, 1883, an unusually fine and mild day, I heard a Chiffchaff in full song, in a grove of trees near the village of Glandore. These two instances of its occurrence in winter go far to confirm Yarrell's supposition "if, indeed, it ever entirely leaves the island."—C. DONOVAN, jun. (Westview, Glandore, Leap, Co. Cork).

Spoonbill on the Devonshire Avon.—A bird of this species was seen on the morning of November 4th standing motionless by the water's edge, below the Weir at Aveton Gifford, and some time elapsed ere Mr. Ellis (the lessee of the Salmon fishery) returned with his gun and shot it. The plumage indicates a bird of the year, and its trachea lacks the figure-of-eight convolutions peculiar to the adult. Its sex is female, and, from the perfectly empty condition of its stomach, it had evidently not fed for some time.—E. ELLIOT (Kingsbridge, Devon).

Domestication of the Partridge.—Towards the end of October I saw a remarkable instance of the tameness to which Partridges may be brought with care and patience. The birds, two in number, were hatched by a Bantam, and successfully reared by Mr. James Emerson's gardener at Easley Hall, Cleveland. For several weeks they have lived in a walled garden, following the gardener about while he attends to his duties, and have become so tame as to allow strangers to approach within a yard of them. They feed regularly out of the gardener's hand, and even took food from a lady who was a comparative stranger to them. Until recently they

showed no desire to leave the garden ; but shortly before I saw them they were frightened by a cat, and since that time they have flown out to roost, returning at daylight to receive their breakfast.—T. H. NELSON (Redcar).

Variety of the Wild Duck.—When shooting near Adderbury, Oxon, on October 4th, we bagged a curious light-coloured variety of the Wild Duck (*Anas boschas*, female). The ordinary brown is everywhere replaced by various shades of buff, and the light-coloured markings are much paler than usual. The white of the wing-lining is strongly tinged with yellow, and the same tint is noticeable on many of the light-coloured feathers. Primaries stone-coloured, with the inside webs, except the tip, nearly white ; legs and beak perhaps a little lighter and brighter than usual. The bird rose from the swere with a normally coloured one, which afforded us the means of at once noting the stranger's peculiarities by comparison.—OLIVER V. APLIN (Great Bourton, Oxon).

Late nesting of the Yellowhammer.—On September 10th, while Partridge shooting, and looking for a wounded bird, I found a Yellowhammer's nest, in a gorse-bush, containing three eggs and two young birds.—T. N. POSTLETHWAITE (Hallthwaites, Millom, Cumberland).

Spotted Redshank in Co. Sligo.—On the 8th October last, when passing along the Scurmoreshore in my gunning punt, I observed a Spotted Redshank, *Totanus fuscus*, in the company of two Greenshanks. I passed within about twenty yards, but not having my small gun with me I was unable to secure it. When paddling past the same place, on the 14th, I met with the bird again, in company with two Greenshanks, probably the same pair. I followed them for nearly a mile along the shore, and although I several times got within range I was unable to fire, the punt being too unsteady in the rough water. However, at last I got, as I thought, a fair shot, and fired, but missed the bird, which after all got off uninjured.—ROBERT WARREN (Moyview, Ballina).

Wildfowl Decoys.—May I ask your readers, through you, if any interested in the subject will supply me with the names and positions of past and present wildfowl decoys in our Islands. Though I have a large amount of plans and sketches, and many hundred letters, about Decoys, still there may be much information I have not yet received. I think that Decoys deserve a standard work, and this want I hope to supply.—RALPH P. GALLWEY (Cowling Hall, Bedale).

Breeding Habits of the Hooded Crow.—Hooded Crows breed in this neighbourhood in considerable numbers. Several pairs this season frequented some low-lying meadows called the Coolfin bogs. They are by no means gregarious in the breeding season, and hardly so at other times about here ; although I once saw eight of them feeding together in

a field, a considerable distance, usually at least the breadth of a field, separated their nests. All the nests I saw, except two, were built in very low whitethorn bushes, on an average about seven or eight feet from the ground.—W. W. FLEMING (Clonegam Rectory, Portlaw, Co. Waterford).

Crossbills in Co. Cork.—On the 13th and 30th of November last two small parties of Crossbills—consisting of two and seven birds respectively—visited some Scotch Firs close to this house. I shot four of them, two in red and two in green plumage. They were very tame, particularly on the last occasion, when they took no notice of the report of the gun, but remained on the tree; and it was not till I had thrown two or three stones into the tree that they at length flew away. I heard them again among the firs on the 1st of December, and on the 2nd I saw two of them flying over my head, going in the direction of a fir wood. I heard Crossbills last year in a grove of silver firs close to Myross Wood. I was not sure at the time what birds they could have been, but now, since I have heard the notes of the Crossbill, I have no hesitation in saying that they were of that species.—C. DONOVAN, JUN. (Westview, Glandare, Leap, Co. Cork).

Black Redstart in Oxfordshire.—On the morning of November 7th I watched for some time a Black Redstart which was enjoying the sunshine on some walls and heaps of stones near here. The bird seems rarely to have found its way into this county. Judging by the very dark colour of head and neck, I think this specimen was an old male. I have not been able to discover it a second time.—W. W. FOWLER (Kingham, Chipping Norton, Oxon).

Short-toed Lark in Kent.—Passing, by chance, a bird-catcher's shop, I stepped in to ask the owner if he had ever caught any rare birds. He told me that in June, 1883, he had caught, near Orpington, in Kent, a peculiar lark which no bird-stuffer or bird-catcher of his acquaintance had been able to name. The bird died, but he had it preserved, and showed it to me, when I found it to be the Short-toed Lark, *Alauda brachydactyla*, Leisler. The bird-catcher kept it for some time; and it soon became accustomed to confinement; but, unfortunately, died soon after completing its moult. "Its song," he remarked, "resembled that of a Sky Lark, but was more varied."—THEO. FISHER (Erfurt Lodge, Greenwich).

Hairy Variety of the Moorhen.—A specimen of the hairy variety of the Moorhen, *Gallinula chloropus*, was procured on the 13th of October last at Claughton, Lancashire. Owing to the hair-like nature of its wing-feathers it was unable to fly, and was caught by a little boy and brought to me. The ends of the longer wing-feathers have been worn away, presumably by its efforts to fly. In the 'Transactions of the Norfolk and

Norwich Naturalists' Society,' vol. iii., part 5, there is an interesting article on this singular variety by Mr. J. H. Gurney, jun., from which it appears that the specimen now under notice is the first which has been met with in any of the northern counties of England. In general appearance and colouring it resembles the specimen figured by Mr. Gurney in the above-mentioned publication.—W. FITZHERBERT-BROCKHOLES (Claughton-on-Brock, Garstang).

Tree Sparrow in South Devon.—Three specimens of this bird were seen, and two of them shot, early in the month of November near here. They were identical in plumage, but proved to be male and female. So far as I can ascertain, this is the only instance of their having been obtained in this portion of the county.—E. ELLIOT (Kingsbridge, Devon).

[The Tree Sparrow, according to previous writers on Devonian Ornithology, has occurred at Plymouth, St. Budeaux, and Bicton in South-East Devon, and it is also met with occasionally in Cornwall and the Scilly Islands. There is, perhaps, nothing very remarkable in its appearance at Kingsbridge, except the fact that it had not previously been noticed there.—ED.]

The Migration of Birds on the West Coast of England.—Having been elected a member of the British Association Migration Committee I have had assigned to my special charge the West of England and Wales. In order to make my report as complete as possible, I appeal to ornithologists and others to assist by sending me their observations (however scanty they may be) on the migratory movements of all species, or on the occurrence of rare or uncommon birds within the region during the spring or autumn of the present year. The notes, where possible, should be accompanied by observations on the direction of the wind and the state of the weather during the observations of migratory movements, or immediately preceding the occurrence of uncommon species. Notes received will be incorporated with those from the lighthouses and light-ships. All assistance will be fully acknowledged.—WM. EAGLE CLARKE (18, Claremont Road, Headingley, Leeds).

Breeding-places of the Gannet.—I believe I am accurate in saying that the Gannet does not breed at any British station where man is permanently resident. Every British station is an island, and they are all uninhabited. In 'The Zoologist' for December (p. 477) I am reported to have said the very reverse of this, an error which I desire to correct.—RICHARD M. BARRINGTON (Fassaroe, Bray, Co. Wicklow).

[We do not think our correspondent is quite correct in his assertion. Lundy Island is inhabited; so formerly was the Bass Rock; both are well-known breeding haunts of the Gannet.—ED.]

Lesser White-fronted Goose in Leadenhall Market.—On November 14th I saw a Lesser White-fronted Goose (*Anser erythropus*) in Leadenhall Market. The bird, I was told, had been received from Holland. Is it not unusual for this species to occur so far west? There were two specimens of *Anser albifrons* in the market the same day; it was therefore not easy to mistake the two species.—THEO. FISHER (Erfurt Lodge, Greenwich).

The Garden Warbler in the Færoe Islands.—*En route* for Iceland by the Danish royal mail steamer 'Thyra,' in September last, along with my friend Mr. James Backhouse, jun., we made the usual call at Trangisvaag, Thorshavn, and Klaksing. At the two first-named places we spent some hours on shore with our guns, and, singularly enough, at both these places we observed single specimens of the Garden Warbler (*Sylvia hortensis*), which, I believe, has not been hitherto noted as occurring in these islands. On September 4th, at Tvera (Trangisvaag), on the island of Suderoe, the first bird was seen, at a distance only of a few feet, busily searching for food on some low herbage. It was so close to the houses that we did not care to shoot it. On being disturbed it flew away and was lost. The one seen at Thorshavn on the following day was feeding on red currants in a small sheltered garden on the outskirts of the town. This I watched for some minutes with my binoculars, and am quite positive as to the identification of the species.—WM. EAGLE CLARKE.

FISHES.

Electric Ray at Porthleven.—The recent capture of a Torpedo, or Electric Ray, at Porthleven, near Helston, afforded me an opportunity of trying one or two very interesting experiments. This fish was captured on the 15th of October last on the exact spot where two Torpedoes were captured in 1883. It was a large specimen, weight about half a hundred-weight, length $3\frac{1}{2}$ feet, caudal fin 10 inches across. The capture was effected by means of a "drag-in" seine, and the fish kept alive until I reached the spot by tying a long cord to the tail and allowing it to remain in deep water. Experiments were first made to test the strength of the galvanic stroke. I placed my foot for an instant on the creature's back; immediately a severe shock was transmitted. Others then experimented; each individual received violent shocks. It was most interesting to note that the shocks were only given at the animal's will. Sometimes there was a delay of half a minute and no shock, but when it came it was very powerful. The smaller boys present seemed very susceptible of the stroke. Next an electric bell I brought with me was connected thus—a piece of zinc was attached to each of the wires leading to the bell; one plate was placed on the torpedo, the other underneath; the result was anxiously watched. To our great gratification the bell sounded distinctly. This did not continue long, for the torpedo was nearly exhausted. No

further experiments could be made, for the Torpedo ceased to evolve any electricity after this. On examining the mouth, the tails of two fishes were seen. On extricating them they proved to be a large bass two feet long and a conger two feet and a half in length. This last circumstance affords proof of the destructive powers of this most remarkable of the electric fishes.—ED. RUNDLE (Porthleven).

Food of the Common Cod.—On 24th November last I took out of the stomach of a Common Cod caught in Mounts Bay, the half-shells of several bivalves, all of the species "*Pecten*"; three or four little rounded pebbles of unstratified slate, one of them covered with a coralline formation; the half-digested remains of some small fish, too far gone for identification; and a mass of small crabs, out of which I was able to select the remains of forty sufficiently perfect for identification. I found *Xantho florida* and *X. rivulosa* (which I believe to be the same Crab) in the greatest numbers. More than one half were of this species. There were two specimens of the Wrinkled Swimming Crab (*Portunus corrugatus*), two of the slender Spider Crab (*Stenorhynchus tenebrosus*), a fragment of a small Common Crab (*Cancer pagurus*), two specimens of the minute Dwarf Crab (*Porcellana longicornis*), two of the Dwarf Swimming Crab (*Portunus pusillus*), and eight distinct carapaces (some with claws, some with legs, and some without either) of that exceedingly rare Crab the Slender-legged Spider Crab (*Inachus leptochirus*). I had never seen this species before; but, on comparing the eight specimens with Bell's description and figure, the identification was absolutely certain. Two of the males were sufficiently perfect to show plainly and unmistakably the "round polished tubercle on the thorax which somewhat resembles the half of a pearl" (Bell). It is to be noted that in the whole contents of the stomach of the Cod—those which I threw away as well as those which I was able to identify—I found no trace of the remains of any shrimps or of any of the little lobster-like Crustaceans (*Galathea*, *Munida*, *Scyllarus*, &c.), which, we know, are abundant in Mounts Bay. I need hardly say that none of the specimens were in a state fit for preservation.—THOS. CORNISH (Penzance).

ANNELIDS.

Collections at Jersey.—We hear that Messrs. Sinel & Co., marine zoologists of David Place, Jersey, are now sending out to museums and collectors some remarkably fine and rare Annelids obtained from their coasts. They also have one of the finest series of Crustaceans ever offered to naturalists, and their microscopic preparations of the early life-stages of these and other marine forms attract, we understand, much attention, being comparatively new objects to microscopists. Messrs. Sinel are fortunate in having selected so favourable a locality, the fauna of which they are so assiduously investigating.

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

November 20, 1884.—Prof. P. MARTIN DUNCAN, F.R.S., Vice-President, in the chair.

Mr. A. Roope Hunt, of Torquay, was elected a Fellow of the Society.

Mr. F. M. Campbell exhibited a Dragonfly caught in September on the left bank of the Dordogne from a flight of Dragonflies which were taking a south-easterly direction; numbers were observed passing continuously for an hour and a half. He also drew attention to the steady progressive movement of the Humming Bird Hawk Moth when placed on its back.

In a paper entitled "Notes on the habits of some Australian Hymenopterous Aculeata," by Mr. H. L. Roth, the author states that the wasps of the genus *Pelopæus* (*P. atus*) build their nests on the walls, ceiling, legs of chairs, under the table, in cupboards, vases, between pictures and the walls, on curtains, and in all sorts of crevices in the house, or on the roof. No place is safe from their intrusion. When a cell is completed the wasp goes in search of spiders, and, seizing these, packs their half-dead bodies in the cell, lays an egg and closes the cell top. Afterwards rows of cells are added to the primary one, and dealt with in the same fashion, generally finishing with a streaked coating of mud, to conceal the real contents beneath. Of the Australian ants, *Formica rufinigro* is numerous, bold and destructive; it destroys the web of certain caterpillars, and thereupon wriggles them out to fall a prey to a host of attendant warrior ants.

December 4, 1884.—WILLIAM CARRUTHERS, F.R.S., Vice-President, in the chair.

The following gentlemen were elected Fellows of the Society:—The Hon. F. S. Dobson, LL.D., of Victoria, Australia; William A. Haswell, M.A., of Sydney, N. S. Wales; George W. Olfield, of London; Dr. George W. Parker, of Honolulu; Michael C. Potter, M.A., of Cambridge; Vet. Surg. Thos. J. Symonds, of the Madras Presidency; W. A. Talbot, of Yellowpore, Bombay; and J. M. Thompson, of Melbourne, Australia.

A paper was read by Dr. Francis Day on the "Relationship of the Indian and African Freshwater Fish-Fauna." In this communication the author refers to certain papers of his read before the Society on previous occasions; but he more particularly deals with the differences shown between his own statements therein and those subsequently enunciated by Dr. Günther in his "Introduction to the Study of Fishes." Dr. Day is inclined to believe that in the consideration of Indian fish-distribution there seems a possibility that certain marine forms; for example,

the Acanthopterygian *Lates*, the Siluroid family *Ariinæ* and others, have been included amongst the freshwater fauna by Dr Günther; whereas freshwater genera such as *Ambassis*, several genera of the Gobies, *Sicydium*, *Gobius*, *Eleoteris*, &c., have been omitted by Dr. Günther from the freshwater fauna of India. Thus Dr. Day attempts to show that there may be less affinity between the African and Indian regions, so far as freshwater fishes are concerned, than there is between his restricted Indian region and that of the Malay Archipelago. He adds that, of eighty-seven genera found in India, Ceylon, and Burmah, fourteen extend to Africa and but forty-four to the Malay Archipelago; whereas out of 369 species only four extend to Africa and twenty-nine to the Malay Archipelago.

"On *Heterolepidotus grandis*, a fossil fish from the Lias," was the title of a paper by James W. Davis. The author describes the specialities of this form, and remarks that the genus was instituted by Sir Philip Egerton for certain fish closely related to *Lepidotus*, but differing in their dentition and scaly armature. The *H. grandis* has interest, among other things, in the attachment of the dorsal and anal fins with the series of well-developed interspinous bones, in the peculiar arrangement of the articular apparatus of the pectoral fins, and in the heterocercal form of the tail.—
J. MURIE.

ZOOLOGICAL SOCIETY OF LONDON.

November 18, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of October, 1884, and called attention to a specimen of a Black-necked Coly, *Colius nigricollis*, purchased October 20th, being the first example of this species received alive by the Society.

A communication was read by Mr. J. G. F. Riedel, containing comments on certain passages in Mr. H. O. Forbes's paper on Timor-Laut birds, read before the Society on the 17th June, 1884.

A communication was read from Mr. H. Pryer, giving an account of a recent visit to the Edible-Bird's-nest Caves of British North Borneo. In illustration of this paper, Mr. Pryer sent specimens of the Swift, *Collocalia fuciphaga*, of its nest and eggs, of the Alga on which the bird is supposed to feed, and of the Bat which inhabits the same caves.

Mr. Sclater read an account of some skins of Mammals from Somaliland, which belonged apparently to five species. Amongst these was an apparently new form of Wild Ass, which was proposed to be called *Equus asinus somalicus*.

Mr. F. E. Beddard read a paper on the anatomy of the Umbrette,

Scopus umbretta. The author observed that as regards its exact systematic position, which had been hitherto a matter of doubt, he was inclined to place this peculiar form as the type of a separate family, between the Herons (*Ardeidæ*) and the Storks (*Ciconiidæ*).

A second paper by Mr. Beddard contained the results of some recent investigations into the structure of *Echidna*, and related to the presence of a persistent umbilical vein in that animal.

Captain Shelley read a paper on some new or little-known species of East-African birds. Three of these were described under the names *Muscicapa Johnstoni*, *Pratincola axillaris*, and *Nectarinia kilimensis*. The collection, which contained altogether ninety-four specimens, referable to thirty-eight species, was the first fruits of Mr. H. H. Johnston's Expedition to Kilimandjaro.

A communication was read from Mr. J. H. Gurney on the geographical distribution of *Huhua nipalensis*, with remarks on this and other allied species of Owls.

December 2, 1884.—DR. ST. GEORGE MIVART, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of November, 1884, and called attention to a pair of Tasmanian Wolves, *Thylacinus cynocephalus*, obtained by purchase, being the first examples of this animal received since the pair presented in 1863.

Colonel Biddulph exhibited a stuffed specimen of the Wild Sheep of Cyprus, *Ovis ophion*, sent for presentation to the British Museum by Sir Robert Biddulph, the High Commissioner of Cyprus.

Colonel Biddulph also exhibited three heads of the Wild Sheep of Beluchistan, named *Ovis Blanfordi* by Mr. Hume, and drew attention to their similarity to *O. cycloceros* from the Salt Range, which led him to express doubts as to the distinctness of *O. Blandfordi* as a species.

The Secretary called the attention of the Meeting to the death, on the 5th July last, of the Greater Vasa Parrot, *Coracopsis vasa*, presented to the Society by the late C. Telfair, Esq., in July, 1830, which had passed fifty-four years in the Society's Gardens, and made some observations on a peculiar habit of this species.

A communication was read from the Rev. A. M. Norman and the Rev. T. R. R. Stebbing, containing an account of the first portion of the Crustacea Isopoda dredged during the Expedition of the 'Porcupine,' 'Lightning,' and 'Valorous.' The memoir contained descriptions of the representatives of the three families *Tanaidæ*, *Apseudidæ*, and *Anthuridæ*, obtained during the several expeditions. A great number of new forms, chiefly from deep water, including several new genera (*Sphyrgraphus*, *Alsotanais*

and *Tanaella*, among the *Tanaidæ*, and *Anthelura*, *Hyssura*, *Cyathura* and *Calathura*, among the *Anthuridæ*, were described.

Mr. G. E. Dobson exhibited a diagram designed to illustrate the evolution of the Mammalia, after Huxley.

Prof. F. Jeffrey Bell read the fifth of his series of Studies in Holothuroidea. The present paper gave some further information on the characters of the Cotton-Spinner, *Holothuria nigra*.

Mr. J. Bland Sutton read a paper on the parasphenoid, the vomer, and the palato-pterygoid arcade of the vertebrated skeleton. Mr. Sutton came to the conclusion that the parasphenoid of Fishes was the homologue of the vomer of Mammals.

Mr. G. A. Boulenger read some notes on the Edible Frogs introduced into England, which he referred to two forms—*Rana esculenta typica* of France and Belgium, and *R. esculenta lessonæ* of Italy.

A communication was read from the Count T. Salvadori containing remarks on certain species of Birds from Timor Laut.

A communication was read from Mr. E. P. Ramsay, containing the description of a supposed new species of Flycatcher from New Guinea, proposed to be called *Rhipidura fallax*.

Mr. F. Day read the third of his papers on races and hybrids among the *Salmonidæ*. The author gave an account of how the Salmon, which had been raised in freshwater at Howietown, had been artificially obtained: and pointed out that all the hybrids between the Salmon and the Trouts had proved sterile, while the hybrids between the Trouts and the Chars had proved fertile.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

August 6, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

Mr. F. P. Pascoe exhibited some curious white puffy balls he had found on a vine growing in a greenhouse when staying at St. Helier's, Jersey, doubtless the work of *Coccidæ*, and probably belonging to *Lecanium* (*Pulvinaria*) *vitis*. Prof. C. V. Riley confirmed the determination.

Mr. J. H. Durrant exhibited specimens of the three British species of *Blaps* (*B. mortisaga*, L., *B. mucronata*, Latr., *B. similis*, Latr.), all lately captured in the neighbourhood of Hitchin.

Mr. W. L. Distant exhibited an ordinary specimen of *Cilix spinula*, Schiff., and remarked that though its peculiar position when at rest had been described, it had not been noticed that it thus perfectly resembled a species of the homopterous genus *Flata*. Its anterior wings, vertically raised, with the upper surface exposed, are only visible, the antennæ being hidden and the head depressed, so that it appears truncate in front. Familiar

with the Homoptera, Mr. Distant concluded that he had discovered a species of *Flata* new at least to Britain, until he came to set out the specimen. He further remarked that the recently loosely-used term "mimicry" could not be applied here, as the moth could hardly be considered to mimic a *Flata* which did not occur in our fauna.

Mr. A. G. Butler remarked on the great similarity sometimes existing between lepidopterous and homopterous insects; he had lately described a Lithosiid allied to *Nudaria* from New Holland, which he certainly thought at first was an Homopteron; the resemblance was so striking that he had named the genus *Homopsyche*; the hairs along the costa were very striking, and he quite believed this was a case of mimicry. Quite lately he had found a second specimen in the Museum collection which had been put away in the supplementary cabinet as not a lepidopterous insect.

Mr. E. A. Fitch called attention to the great resemblance that *Cilix spinula* bore to the excrement of a bird, when at rest on the upper side of a leaf, as was its common practice.

Mr. G. C. Champion said when collecting in Central America he was frequently deceived as to the orders to which certain insects belonged, and was often surprised at their great resemblance to other natural objects.

Mr. F. P. Pascoe, in connection with the above, exhibited a large and pretty Chalcid (which Mr. Fitch determined as one of the *Cleonymida*), which he had lately captured at St. Helier's, quite thinking it was an Hemipteron; when running it had its wings overlapping in true bug fashion.

Mr. T. R. Billups exhibited specimens of the two following *Tenthredinidæ*, new to Britain, which had been determined by Mr. Cameron:—*Blennocampa alternipes*, Kl., captured at Loughton last May, and *Camponiscus apicalis*, Brischke, captured at Weybridge last May. The latter species was only described last year, and is probably exceedingly rare. Also specimens of a hymenopterous insect taken from the burrows of *Halictus morio* at Chertsey on July 21st last.

Mr. Fitch said this latter insect was a *Chelognus* (probably *C. lapponicus*, Thoms.), one of the *Dryinidæ*; he could not account for its presence in the bee burrows, but he called attention to the remarkable anterior raptorial claws, and exhibited Curtis's figure (Brit. Ent. fol. 206).

Miss E. A. Ormerod exhibited a piece of leather perforated by *Æstridæ*, the punctures being more than one to the square inch. She also called attention to what is known of the life-history of our bot-flies, and especially of the warble-fly (*Hypoderma bovis*, DeG.), and laid considerable stress on the practical necessity of attempting to lessen the amount of injury occurring both to the cattle themselves and to the great loss from warbled hides. Apparently what is required is to know the exact time when the egg is laid in or on the cattle, and how early in life is the maggot come-at-able under the bullock's hide, then probably methods of precaution

or remedy might be recommended that would be tolerably effective. Miss Ormerod thought that the injury occasioned by the *Æstrus* larva could be prevented with slight trouble and expense, and hoped that the necessary observations to ensure successful treatment would be made.

Mr. W. L. Distant agreed as to the great injury occasioned to the hides by these pests, and recommended Miss Ormerod to address a letter to the 'Leather Trades Journal' upon the subject; he believed many people engaged in the leather trade would be willing to lend their assistance towards the object of lessening the number of warbled hides.

Mr. E. A. Fitch said that the amount of damage occasioned by the *Æstrus* larvæ was very uncertain; he had always found short-horn beasts (and especially yearling and two-year olds) most affected, and three and four year old Welsh or Scotch beasts—commonly known as 'runts'—quite free from attack; he believed that the warble opened in May or June, but there appeared to be some special difficulty in breeding the perfect *Æstrus*, as he had tried it from many scores of larvæ, but had never yet succeeded.

Prof. C. V. Riley expressed the interest he felt in the remarks of Miss Ormerod. In reference to the time of year when the cavity opened, it would differ somewhat in different countries and with individual larvæ. In the State of Illinois, where he had much experience with the species, the larva left the cattle in May and June; oviposition extended over a period of several weeks, and there would be a corresponding difference in the period of opening of the cavity. For this reason it was best to defer destruction of the "warble" till late in the autumn, when the rubbing of kerosene along the backs, or the use of a little mercurial ointment would destroy the larvæ. The insect was rarely injurious to grown cattle, but when abundant affected the health of yearlings. The interests of the cattle raiser and of the leather dealer had little in common, and it was for this reason that it was so difficult to get concert of action on the part of stock-raisers in freeing their animals from the insect.

Miss Ormerod thanked Prof. Riley for his information, and said she could give some confirmation of his remarks, as in some Northumbrian districts the application of a mixture of oil with a small amount of turpentine or of strong pickling brine had effected a perfect cure.

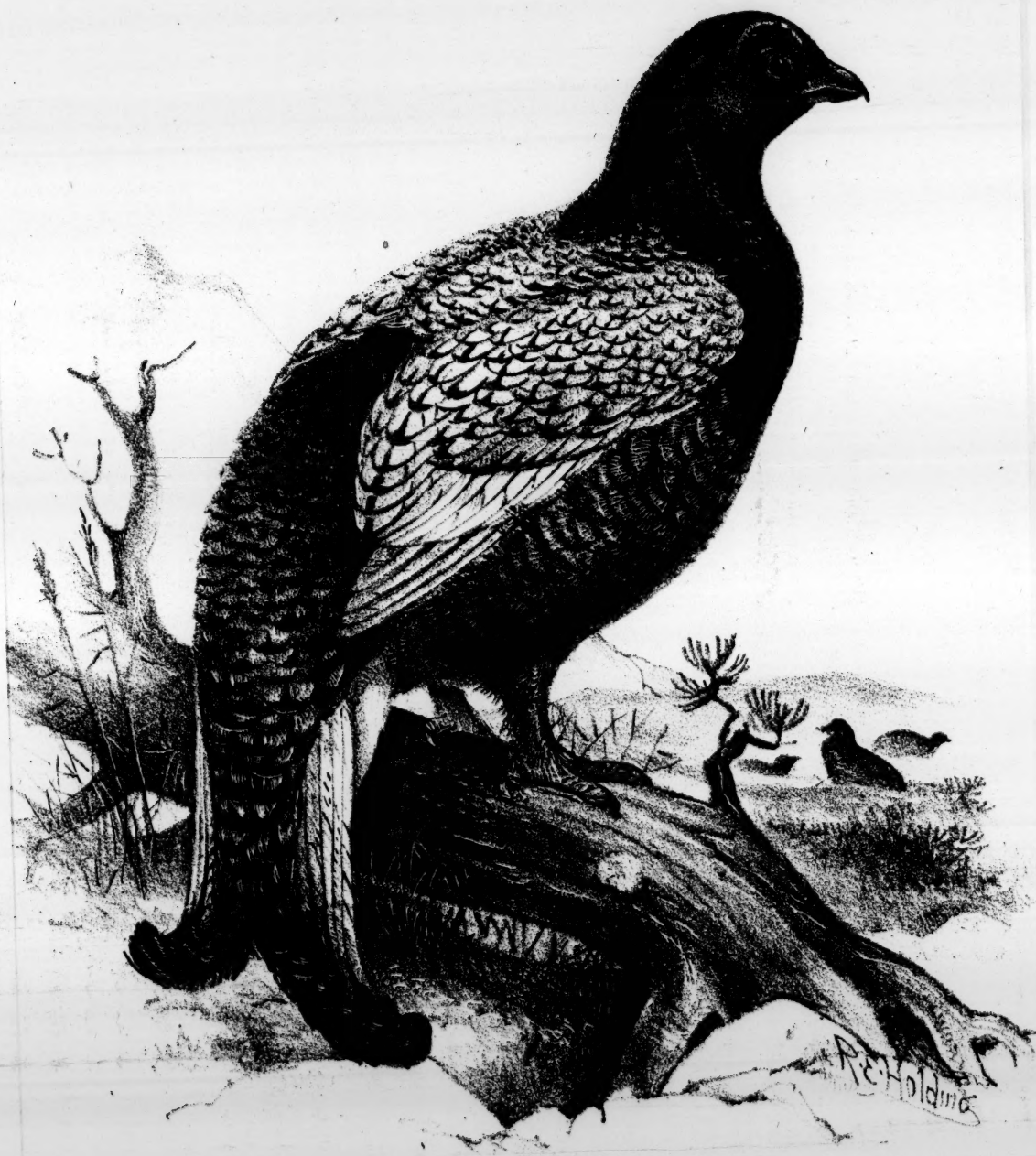
M. Wailly exhibited a large box of bred Lepidoptera, especially of silk-producing Bombyces.

The Secretary read a "Note on the habitat of *Platychile pallida*, Fabr.," by Mr. Roland Trimen, F.R.S., &c.

Mr. Butler communicated a paper by Surgeon-Major R. W. Forsayeth, "On the life-history of sixty species of Lepidoptera observed in Mhow, Central India." Mr. Butler referred to the more remarkable species, and Mr. Forsayeth's three books of drawings were exhibited.—E. A. FITCH, *Hon. Sec.*







R.E. Holding del. et lith.

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Variety of the Black Grouse,
Tetrao tetrix, Linn.